

TRANSLATION OF TW547716

Abstract

A touchpad cursor positioning structure for a portable computer is provided. A touchpad, a supporting base, and an optical circuit substrate are arranged in sequence in a rectangular opening of a housing of a portable computer keyboard. To move on the screen of a computer, the touchpad is moved by a user's finger to generate a moving signal, and the computer receives the moving signal and recalculates and draws a new cursor position on the screen, so that the cursor is moved to a new cursor destination. If selecting is required, it is only necessary to lightly press the touchpad so as to correspondingly move the supporting base downwards through an elastic element arranged therein to lightly press a switch on the optical circuit substrate to achieve the purpose of selecting. Further, after releasing the lightly pressed touchpad, the supporting base is repelled to a former height position by the elastic element, so as to be ready to be selected again.

Touchpad Cursor Positioning Structure for Portable Computer

Background of the Invention

Field of the Invention

The present invention relates to a touchpad cursor positioning structure, and more particularly to a touchpad cursor positioning structure for a portable computer, in which the touchpad cursor positioning structure is formed by all the principles of an optical mouse device, so that through the touchpad cursor positioning structure of the present invention, the user can easily move the cursor and make the motion definite in practical use.

Description of the Prior Art

In common portable computers (for example a hand-writing system used on PDA or most notebook computers) where a touchpad replaces a mouse device, manners of positioning the cursor are classified into variable resistance type, pressure sensing type, key pressing type, and variable capacitance type using fingertip touch etc.

No matter which manner is adopted, it is believed that users commonly experience problems with indefinite positioning of the cursor and difficulty in easily moving the cursor. Therefore, a cursor positioning device adopting an infrared wireless receiver is proposed which can receive a moving cursor signal sent by an infrared wireless mouse device, thereby achieving the purpose of flexibly moving the cursor as the mouse device usually used for common desktop computer.

However, if the cursor positioning device is adopted, the user must carry an additional infrared wireless mouse device. In this manner, the portability of the portable computer will be limited. If the mouse device is lost due to carelessness, the user must still use the touchpad arranged on the portable computer to perform the function of positioning the cursor. Therefore, the conventional manner of positioning the cursor is inconvenient and not user-friendly, and still has room for

improvement.

Summary of the Invention

In view of the above-mentioned difficulties and disadvantages of the conventional touchpad (for example on the positioning of the moving of the cursor, the motion is not definite, usually the user feels that it is difficult to control, and if the wireless mouse device is adopted, when the user goes out, it is necessary to additionally carry the mouse device), through years of experience in product manufacturing and of research and experiment, the inventor finally develops and designs a touchpad cursor positioning structure for a portable computer with a simple structure, in which the mouse motion principle used by a desktop computer is integrated in the touchpad on the portable computer so that the touchpad can achieve the purpose of flexible application in the same way as the mouse device used for desktop computer.

The present invention is mainly directed to a touchpad cursor positioning structure for the portable computer capable of replacing the touchpad on the portable computer in the conventional art, which has the disadvantages of indefinite cursor positioning motion and inability to easily move the cursor. Through the touchpad cursor positioning structure of the present invention, the user can easily move the cursor, and after the cursor is moved to a target position, it is only necessary to lightly press the touchpad to select the item required by the user in the same way as lightly pressing the left key of the conventional mouse device, thereby achieving the purpose of simplicity and practicability.

The present invention is further directly to a touchpad cursor positioning structure for a portable computer. The touchpad cursor positioning structure uses the principle of the optical mouse device used by the current desktop computer, so costly redevelopment is not required. The touchpad cursor positioning structure is fixed in a proper position of the portable computer, and a touchpad is made to move, so as to achieve the purpose of easily moving the cursor and making the motion definite. That is to say, in the conventional optical mouse device, the cursor moving is achieved by moving the mouse device, and a mouse pad beneath the mouse device is

not moved while in the present invention, the touchpad is made to move, and a structure body (i.e. the mouse device) is not moved.

In order to help the examiner better understand the objective, shape, construction device feature and function of the present invention, a detailed description is given below with a preferred embodiment and accompanying drawings.

Brief description of the drawings

FIG. 1 is a schematic three-dimensional exploded view of the present invention; and

FIG. 2 is a schematic cross-sectional view of the assembly of the present invention.

Detailed Description

The optical mouse device commonly used for desktop computer is usually moved by the user, and the mouse pad beneath the mouse device is not moved. By moving the mouse device, the moving signal is transmitted to a computer device; after the computer device receives the moving signal, a new cursor is calculated and drawn on the computer screen, thereby finishing the purpose of moving the cursor. The present invention is different from the conventional mouse device motion in that a touchpad on a touchpad cursor positioning structure is made to move and the positioning structure body (i.e., the conventional mouse device) is not moved when achieving the purpose of moving the cursor and making the motion definite.

In FIGs. 1 and 2, a most preferred embodiment of the touchpad cursor positioning for a portable computer according to the present invention is shown. The touchpad cursor positioning for the portable computer is arranged in a rectangular opening 13 of a housing 101 beneath a keyboard 11 of a portable computer 10. A faying element 131, for example a flange, is extended downwards to a distance from four sides of a rear surface of the housing 101 of the rectangular opening 13. Further, a touchpad 20, a supporting base 21, an optical circuit substrate 25 are arranged in the rectangular opening 13, in which another faying element 211, for example a flange, is arranged on upper edge of four sides of the supporting base 21. The faying elements

211 can make the supporting base 21 fayed and embedded in the faying elements 131 on the inner surface of the housing 101. The touchpad 20 is arranged on the supporting base 21, exposed by the rectangular opening 13, and can be driven by a user's finger 40 to freely move on the supporting base 21. At the same time, the touchpad 20 is limited by the faying elements 211 on the four sides of the supporting base 21, which prevents the touchpad 20 from being clipped when moving (see FIG. 2).

In this embodiment, an empty pillar 22 is arranged downwards on each of the four sides of the supporting base 21, and an elastic element 23, for example a ring spring, is sleeved out of each pillar 22. The pillar 22 is hollow inside and corresponds to another pillar 24 inserted in a bottom housing 102 beneath the keyboard 11 of the portable computer 10.

In this embodiment, the area of the optical circuit substrate 25 is smaller than the area of the supporting base 21, and the optical circuit substrate 25 is fixed between the supporting base 21 and the bottom housing 102. A switch 251, an optical sensing device 252, and electronic components 255 and circuit required for normal operation are arranged on the optical circuit substrate 25. The optical sensing device 252 is composed of a light emitting element 253, an image capturing element (not shown), and a lens 254 arranged on the optical sensing device 252. When light from the light emitting element 253 is projected onto a surface of the touchpad 20 through a through-hole 212 on the supporting base 21, the image projected on the surface of the touchpad 20 can be captured by the image capturing element. Further, the elastic element 23 sleeved on the pillar 22 is slightly longer than a topmost end of the switch 251 (see FIG. 2), so when the touchpad 20 is moved, the supporting base 21 will not touch the switch 251 to generate unwanted motions.

The operation manner through the above components is described below. After the touchpad 20 is moved by the user's finger 40 to generate and transmit a moving signal to the portable computer 10, the computer 10 receives the moving signal and calculates and draws a new cursor position on the screen 103, so that the cursor is moved to a new cursor destination. If selecting is required, it is only necessary to

lightly press the touchpad 20 by the finger 40 so that the supporting base 21 is pressed to move downwards because of the elastic element 23 and lightly press the switch 251, thereby achieving the purpose of selecting. Further, after the lightly pressed touchpad 20 is released by the finger 40, the supporting base 21 is repelled to a former height position by the elastic element 23 of the four sides, ready to be selected again.

In this embodiment, a cross mark 201 (see FIG. 1) is arranged on the central point of the touchpad 20, for aligning with a mark symbol 132 arranged on the outer edge of each of the four sides of the rectangular opening 13, and the rectangular opening 13 is used for exposing the touchpad 20 out of the housing 101, so that the user's finger 40 can be on the central point of the touchpad 20 and the touchpad 20 can be moved by the finger 40, so as to achieve the purpose of moving the cursor.

In this embodiment, as shown in FIG. 1, a left key 30 and a right key 31 are arranged on the lower left part of the housing 101 below the keyboard 11. The left key 30 is a return-to-zero positioning key connected to a signal line (not shown) on the optical circuit substrate 25. When a finger of the user (not shown) presses the left key 30 without releasing, and another finger 40 moves the touchpad 20, the cursor on the screen 103 will not be moved because of the moving of the touchpad 20 (that is, the moving signal of the touchpad is temporarily invalid, so it cannot be transmitted to the computer 10). This action is used for adjusting the position of the touchpad 20, i.e. the so-called return-to-zero action. Usually, it is necessary to adjust the position of the touchpad 20, and this action is required when the cursor position on the screen 103 is located near the center of the screen 103, and the cross mark 201 on the touchpad 20 is not located near the central point of the rectangular opening 13.

Further, in another method of adjusting the position of the touchpad 20, when the portable computer 10 is booted, the cursor position is arranged on the central position of the screen 103. At this time, the cross mark 201 on the touchpad 20 should be arranged on the central point position of the rectangular opening 13. If the cross mark 201 on the touchpad 20 is not located near the central point of the rectangular opening 13, it is only necessary to move the touchpad 20 to move the central point to the central point position of the rectangular opening 13, and then lightly press the left

key 30 to send a signal, the cursor position on the screen 103 will be redrawn on the center of the screen 103 and the return-to-zero action of adjusting the central point position of the touchpad 20 will be completed. Further, the right key 31 is connected to another signal line (not shown) on the optical circuit substrate 25, and the right key is equivalent to the right key on the conventional mouse device and has the same function.

Further, in this embodiment, software program in the optical circuit substrate 25 should be adjusted to prevent the cursor on the screen 103 from moving downwards when the touchpad 20 is moved upwards.

It will be apparent to those skilled in the art that various modifications and variations can be made to the structure of the present invention without departing from the scope or spirit of the invention. In view of the foregoing, it is intended that the present invention cover modifications and variations provided they fall within the scope of the following claims and their equivalents.

List of Reference Numerals:

- 10 Portable computer
- 11 Keyboard
- 101 Housing
- 102 Bottom housing
- 13 Rectangular opening
- 131 Faying element
- 132 Mark symbol
- 20 Touchpad
- 201 Cross mark
- 21 Supporting base
- 211 Another faying element
- 212 Through-hole
- 22 Pillar
- 23 Elastic element

- 24 Another pillar
- 25 Optical circuit substrate
- 251 Switch
- 252 Optical sensing device
- 255 Electronic component
- 253 Light emitting element
- 254 Lens
- 103 Screen
- 30 Left key
- 31 Right key
- 40 Finger

We Claim:

1. A touchpad cursor positioning structure for a portable computer, comprising:
 - an opening, arranged in a proper position of a housing of a portable computer keyboard;
 - a supporting base, arranged in the opening, wherein an empty pillar is arranged beneath each of the four sides of the supporting base, an elastic element is sleeved on each empty pillar, and the pillar is empty inside and corresponds to another pillar inserted in a bottom housing beneath the keyboard;
 - a touchpad, arranged on the supporting base in the opening and exposed by the opening, capable of freely moving on the supporting base when driven by an user; and
 - an optical circuit substrate, arranged between the supporting base and the bottom housing, and provided with a switch, an optical sensing device, and electronic components and circuits required for normal operation.
2. The touchpad cursor positioning structure for a portable computer as claimed in Claim 1, wherein the opening is rectangular-shaped, and a faying element is extended downwards to a distance from four sides of a back surface of the housing.
3. The touchpad cursor positioning structure for a portable computer as claimed in Claim 2, wherein another faying element is arranged on four sides of the supporting base, capable of making the supporting base fayed and embedded into the faying element on the inner surface of the housing, so that through the limitation of the faying elements, the touchpad is prevented from being clipped for exceeding the limits when moving on the supporting base.
4. The touchpad cursor positioning structure for a portable computer as claimed in Claim 1, wherein the optical sensing device is composed of a light emitting element, an image capturing element, and a lens arranged on the optical sensing device, when light from the light emitting element is projected onto a surface of the touchpad through a through-hole on the supporting base and the image projected on the surface of the touchpad is captured by the image capturing element.
5. The touchpad cursor positioning structure for a portable computer as claimed in Claim 1, wherein the elastic element is slightly longer than a topmost end of the

switch, so that when the touchpad is moved, the supporting base does not touch the switch to generate unwanted motion.

6. The touchpad cursor positioning structure for a portable computer as claimed in Claim 3, wherein a cross mark is arranged on a central point of the touchpad, for aligning with a mark symbol arranged on outer edge of each of the four sides of the opening, and the opening is used for exposing the touchpad from the housing, so that the user's finger can be placed on the central point of the touchpad and move the touchpad, so as to achieve a purpose of moving the cursor.

7. The touchpad cursor positioning structure for a portable computer as claimed in Claim 1, wherein a left key and a right key are arranged on the lower left part of the keyboard housing, the left key is a return-to-zero positioning key connected to a signal line on the optical circuit substrate, and pressing the left key without releasing will disable moving signal of the touchpad temporarily so that it cannot be transmitted to the computer, in addition, when the computer is booted for the first time, the left key is pressed to force the cursor to be in the center of the screen, while the right key is connected to another signal line on the optical circuit substrate and equivalent to a right key on a conventional mouse device and has the same function.

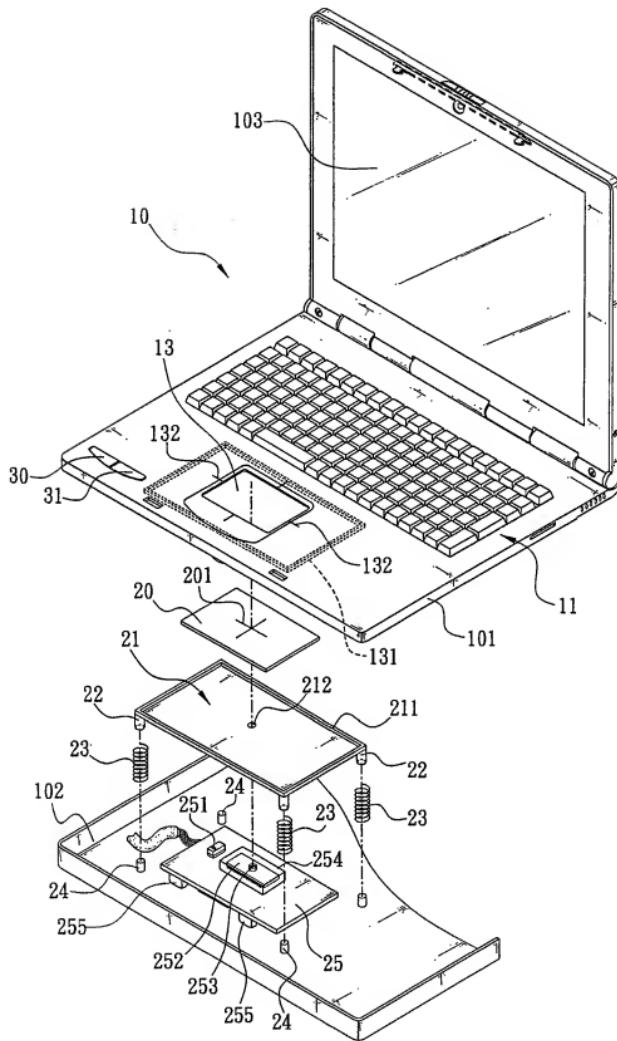
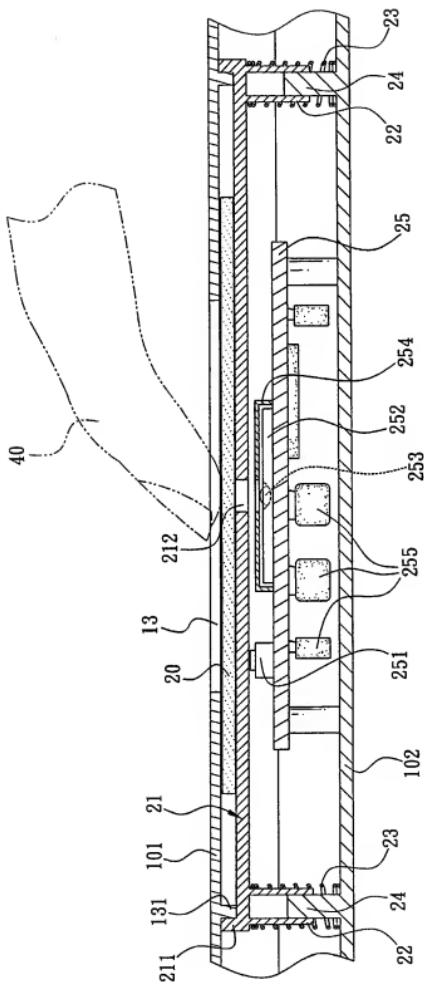


FIG. 1

FIG. 2



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(以上各欄由本局填註)

新型專利說明書

547716

一 新型名稱	中文	可攜式電腦上之觸控板游標定位結構
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代表人 姓名 (英文)	1.	



本案已向

國(地區)申請專利

申請日期

案號

主張優先權

無

四、中文創作摘要 (創作之名稱：可攜式電腦上之觸控板游標定位結構)

本創作係一種可攜式電腦上之觸控板游標定位結構，係在一可攜式電腦鍵盤殼體之矩形開口內，依序分別設有一觸控板墊、一支撐座及一光學電路基板，俾當該電腦螢幕上之游標，被使用者手指移動該觸控板墊而產生移動信號傳達給該電腦後，該電腦即接收該移動信號，並重新計算繪製一新游標位置於該螢幕上，該游標就被移動到達一个新的游標目的地；如要選取時，只需輕壓該觸控板墊，相對令該支撐座透過其內所設之一彈性元件作用，而向下移動輕壓該光學電路基板上之一微動開關，進而達到選取之目的；又，當鬆開被輕壓之該觸控板墊後，該支撐座即被該彈性元件彈回原先之高度位置，形成再次準備被點選之狀態。

英文創作摘要 (創作之名稱：)



五、創作說明 (1)

創作背景：

本創作係有關於一種觸控板游標定位結構，尤指一種使用在一可攜式電腦上，該觸控板游標定位結構係利用一光學式滑鼠裝置之所有原理改良而成，俾藉由本創作之觸控板游標定位結構，可令使用者在實際使用上，達到輕易移動游標且動作確實之目的。

先前技藝：

按，一般可攜式電腦（如：PDA 上使用之手寫系統，或是大部分筆記型電腦（Notebook Computer））上，用以代替滑鼠(Mouse)裝置之觸控板中，其游標定位之方式：分別有一種可變電阻式、一種壓力感應式、一種按鍵式及一種利用指尖碰觸之可變電容式等使用方式。

惟，無論採用上述任何之一種方式，相信使用者在實際使用上，都有過同樣之經驗，即在游標之移動定位上，其動作非常不確實，很難達到輕易移動游標之目的，因此，便有一種採用紅外線無線接收器之游標定位裝置，俾藉由該裝置，可以接收由一紅外線無線滑鼠裝置所發出之移動游標信號，如此，就能夠達到與一般桌上型電腦常用之滑鼠裝置一樣，具有靈活移動游標之目的。

然而，採用此種游標定位裝置，使用者就必須另外攜帶一個紅外線無線滑鼠裝置，如此一來，將限制該可攜式電腦之可攜性，因為，使用者在外出時，就必須額外攜帶該紅外線無線滑鼠裝置，倘若該滑鼠裝置因使用者之疏



五、創作說明 (2)

失、不慎而遺失時，使用者則勢必要回復到原先使用該可攜式電腦上所設之觸控板，以進行游標定位之功能，故傳統之游標定位方式有如前所述之不便與困擾，實有改進之必要。

創作綱要：

有鑑於上述習用觸控板在其游標移動定位上，其動作不確實，常令使用者感到不易控制，以及若採用該無線滑鼠裝置在外出使用時，必須額外攜帶該滑鼠裝置所產生之諸多困擾與缺點下，故創作人以從事該類產品製造多年之經驗，經過長久努力研究與實驗，終於開發設計出一種構造簡單之可攜式電腦上之觸控板游標定位結構，其係將一桌上型電腦所使用之滑鼠動作原理，經過結構設計結合在該可攜式電腦上之觸控板中，進而令該觸控板能夠達到具有如同該桌上型電腦上所使用之滑鼠裝置般，同樣靈活應用之目的。

本創作之主要目的，在於提供一種可攜式電腦上之觸控板游標定位結構，係在取代以往該可攜式電腦上之觸控板，在游標定位動作上之不確實，且很難達到輕易移動游標之目的；而藉由本創作之觸控板游標定位結構，即可令使用者輕易移動游標，且當該游標移動到達一目的位置後，只須輕壓一觸控板墊，即可以達到如同在傳統滑鼠裝置之左鍵上輕壓選取一樣，選取使用者所要之項目，以達到簡單實用之目的。



五、創作說明 (3)

本創作之另一目的，在於提供一種可攜式電腦上之觸控板游標定位結構，由於該觸控板游標定位結構，係利用現有桌上型電腦所使用之光學式滑鼠裝置之原理，故不需額外重新開發所需之成本，係將該觸控板游標定位結構固定在該可攜式電腦之適當位置上，而令一觸控板墊可以移動，即可以達到輕易移動游標且動作確實之目的；亦就是說，傳統光學式滑鼠裝置之游標移動，係由使用者移動該滑鼠裝置，而該滑鼠裝置下方之一滑鼠墊係不動，以達到移動游標之目的，而本創作則是令該觸控板墊移動，結構體（即：滑鼠裝置）不動，同樣可以達到輕易移動游標且動作確實之目的。

為便 貴審查委員對本創作之目的、形狀、構造裝置特徵及其功效，做更進一步之認識與瞭解，茲舉一較佳實施例並配合圖式，詳細說明如下：

詳細說明：

按，一般使用於桌上型電腦之光學式滑鼠裝置，通常係由使用者移動該滑鼠裝置，而該滑鼠裝置下方之滑鼠墊係不動，俾藉由該滑鼠裝置之移動，以傳達移動信號給一電腦裝置接收，該電腦裝置在接收到該移動信號後，會重新計算繪製一新游標位置於該電腦螢幕上，如此，即可完成移動游標之目的；而本創作則係與前述傳統滑鼠裝置動作相反，係令一觸控板游標定位結構上之觸控板墊移動，



五、創作說明 (4)

而該定位結構體不動（即：傳統之滑鼠裝置），如此，同樣可以達到以上移動游標且動作確實之目的。

請參閱第一、二圖所示，係本創作之一種「可攜式電腦上之觸控板游標定位結構」之一最佳實施例，其係設在一可攜式電腦10鍵盤11下方殼體101之一矩形開口13處，該矩形開口13之殼體101背面四周緣向外一段距離分別向下延伸設有一密合元件131，如：凸緣，又，該矩形開口13內係分別設有一觸控板墊20、一支撑座21及一光學電路基板25，其中該支撑座21四周上緣分別設有一另一密合元件211，如：凸緣，該等另一密合元件211恰可令該支撑座21密合嵌入於該殼體101內面之密合元件131內，而該觸控板墊20係設置在該支撑座21上，且外露於該矩形開口13中，並可接受由使用者手指40之驅動在該支撑座21上自由移動，同時該觸控板墊20因受限於該支撑座21四周之該等另一密合元件211之限制，而可防止其在移動時超出範圍而夾住（如第二圖所示）。

在本實施例中，該支撑座21四周向下係分別設有一中空柱狀體22，該柱狀體22外部分別套設一彈性元件23，如：圓狀彈簧，而該柱狀體22空心內部，則係恰好對應插入一位於該可攜式電腦10鍵盤11下方底殼102內之一另一柱狀體24上。

在本實施例中，該光學電路基板25之面積係小於該支撑座21之面積，且係固設在該支撑座21下方介於該底殼102之間，該光學電路基板25上分別設有一微動開關251、



五、創作說明 (5)

一光學感測裝置252及其正常運作所需之電子元件255、電路，而該光學感測裝置252係由一發光元件253、一影像擷取元件（圖中未示）及一恰可設在該光學感測裝置252上之透鏡254所構成，當該發光元件253之光源經該支撐座21上之一貫穿孔212投射至該觸控板墊20面時，該觸控板墊20面上被投射之影像恰可為該影像擷取元件所擷取；又，由於該柱狀體22所套設之彈性元件23長度係略高於該微動開關251之最頂端（如第二圖所示），俾該觸控板墊20被移動時，該支撐座21不會碰觸到該微動開關251，而產生誤動作之情形。

藉上述之構件，其操作方式係當該可攜式電腦10螢幕103上之游標，被使用者手指40移動該觸控板墊20而產生移動信號傳達給該可攜式電腦10後，該電腦10即接收該移動信號，並重新計算繪製一新游標位置於該螢幕103上，該游標就被移動到達一新的游標目的地；如果要選取時，只要手指40輕壓該觸控板墊20，此時，該支撐座21將因彈性元件23之作用同時被往下壓低，而向下移動輕壓該微動開關251，進而達到選取之目的；又，當手指40鬆開被輕壓之該觸控板墊20後，該支撐座21即被四周之彈性元件23彈回原先之高度位置，形成再次準備被點選之狀態。

在本實施例中，該觸控板墊20之中心點處係設有一十字型記號201（如第一圖所示），其係用以對準該矩形開口13四周之外緣上分別所設之一標記符號132，且該矩形開口13之作用係為令該觸控板墊20能夠外露出該殼體



五、創作說明 (6)

101，以便於使用者手指40可以在該觸控板墊20之中心點上，並藉由該手指40之移動，以移動該觸控板墊20，進而達到移動游標之目的。

在本實施例中，復請參閱第一圖所示，該鍵盤11下方殼體101之左下方係分別設有一左鍵30及一右鍵31，該左鍵30即歸零定位鍵，係與該光學電路基板25上一信號線（圖中未示）相連接，其係用以當使用者之一手指（圖中未示）按住該左鍵30不放，而另一手指40移動該觸控板墊20時，該螢幕103上之游標並不會因為該觸控板墊20之移動而移動游標（即該觸控板墊20之移動信號暫時失效無法傳達至電腦10），而此作用係要調整該觸控板墊20之位置，即所謂之歸零動作，通常遇到需要調整該觸控板墊20位置之情況，係當該螢幕103上之游標位置位在螢幕103中央附近時，而該觸控板墊20上之十字型記號201，並非位在該矩形開口13之中心點附近之位置處時才需要。

再者，另一種調整該觸控板墊20位置之方法，係令該可攜式電腦10剛開完機時，游標位置皆被設定在該螢幕103之中央位置，此時，該觸控板墊20上之十字型記號201應該係被設在該矩形開口13之中心點位置處，倘若該觸控板墊20上之十字型記號201中心點，並非在該矩形開口13之中心點位置處時，只要移動該觸控板墊20，使其中心點在該矩形開口13之中心點位置上，然後再輕壓該左鍵30發出一信號，使該螢幕103上之游標位置被重新繪製於該螢幕103中央上，即可完成調整該觸控板墊20中心點位置之



五、創作說明 (7)

歸零動作；另，該右鍵31係與該光學電路基板25上之一另一信號線（圖中未示）相連接，該右鍵31係相當於傳統滑鼠裝置上之右鍵，具有相同之作用。

另在本實施例中，該光學電路基板25上內含之程式軟體係需要作一些調整，用以防止當該觸控板墊20往上移動時，該螢幕103上之游標會產生往下移動之現象。

按，以上所述，僅為本創作之最佳具體實施例，惟本創作之特徵並不偏限於此，任何熟悉該項技藝者在本創作領域內，可輕易思及之變化或修飾，皆應涵蓋在以下本創作之申請專利範圍中。



圖式簡單說明

圖示之簡單說明：

第一圖係為本創作之立體分解示意圖。

第二圖係為本創作之組裝側剖示意圖。

主要元體之圖號說明：

可攜式電腦	..... 10	鍵盤	..... 11
殼體	..... 101	底殼	..... 102
矩形開口	..... 13	密合元件	..... 131
標記符號	..... 132	觸控板墊	..... 20
十字型記號	..... 201	支撐座	..... 21
另一密合元件	..... 211	貫穿孔	..... 212
柱狀體	..... 22	彈性元件	..... 23
另一柱狀體	..... 24	光學電路基板	..... 25
微動開關	..... 251	光學感測裝置	..... 252
電子元件	..... 255	發光元件	..... 253
透鏡	..... 254	螢幕	..... 103
左鍵	..... 30	右鍵	..... 31
手指	..... 40		



六、申請專利範圍

1、一種可攜式電腦上之觸控板游標定位結構，包括：

一開口，係設在一可攜式電腦鍵盤殼體之適當位置處；

一支撑座，係設在該開口內，該支撑座四周向下分別設有一中空柱狀體，其外部分別套設一彈性元件，而該柱狀體空心內部，則係恰好對應插入一位於該鍵盤下方底殼內之一另一柱狀體上；

一觸控板墊，係設在該開口內位於該支撑座上，且外露於該開口中，並可接受由使用者之驅動在該支撑座上自由移動；

一光學電路基板，係設在該支撑座下方介於該底殼之間，該光學電路基板上分別設有一微動開關、一光學感測裝置及其正常運作所需之電子元件、電路。

2、如申請專利範圍第1項所述之可攜式電腦上之觸控板游標定位結構，其中該開口呈一矩形，其殼體背面四周緣向外一段距離分別向下延伸設有一密合元件。

3、如申請專利範圍第2項所述之可攜式電腦上之觸控板游標定位結構，其中該支撑座上四周緣分別設有一另一密合元件，其恰可令該支撑座密合嵌入於該殼體內面之密合元件內，俾藉由該等密合元件之限制，可防止該觸控板墊於該支撑座上移動時，超出範圍而夾住。

4、如申請專利範圍第1項所述之可攜式電腦上之觸控板游標定位結構，其中該光學感測裝置係由一發光元件、



六、申請專利範圍

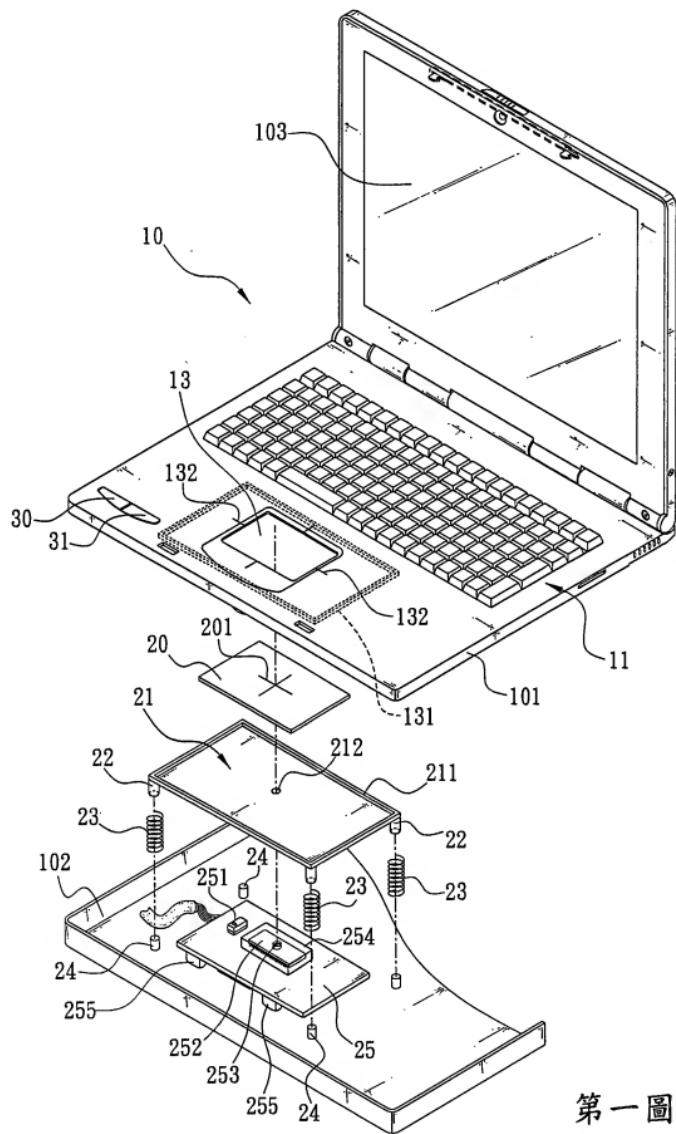
一、影像擷取元件及一恰可設在該光學感測裝置上之透鏡所構成，當該發光元件之光源經該支撐座上之一貫穿孔投射至該觸控板墊面時，該觸控板墊面上被投射之影像恰可為該影像擷取元件所擷取。

5、如申請專利範圍第1項所述之可攜式電腦上之觸控板游標定位結構，其中該彈性元件長度係略高於該微動開關之最頂端，俾該觸控板墊被移動時，該支撐座不會碰觸到該微動開關，而產生誤動作之情形。

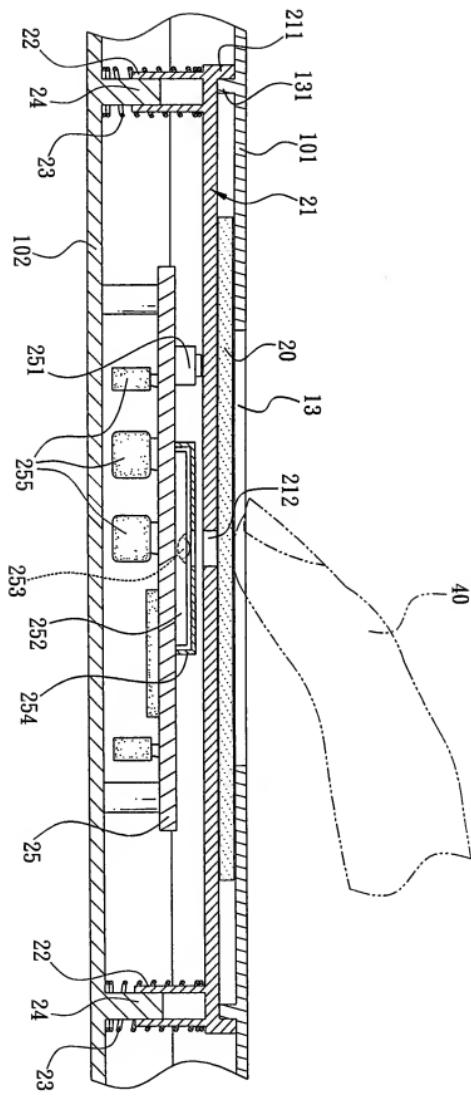
6、如申請專利範圍第3項所述之可攜式電腦上之觸控板游標定位結構，其中該觸控板墊之中心點處係設有一十字型記號，係用以對準該開口四周之外緣上分別所設之一標記符號，且該開口之作用係為令該觸控板墊能夠外露出該殼體，以便於使用者手指可以在該觸控板墊之中心點上，並藉由該手指之移動，以移動該觸控板墊，進而達到移動游標之目的。

7、如申請專利範圍第1項所述之可攜式電腦上之觸控板游標定位結構，其中該鍵盤殼體之左下方係分別設有一左鍵及一右鍵，該左鍵即歸零定位鍵，係與該光學電路基板上之一信號線相連接，且該左鍵被按下不放之作用係使觸控板墊之移動信號暫時失效無法傳達至電腦，另，在該左鍵第一次開機時被按下，係可強制游標歸於該螢幕中央，且該右鍵係與該光學電路基板上之一另一信號線相連接，該右鍵係相當於傳統滑鼠裝置上之右鍵，具有相同之作用。





第一圖



第二圖